REMARKS

I. Introduction

Claims 6-12 are currently pending in the present application. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

II. Rejection of Claims 6-7, 9-10 and 12 Under 35 U.S.C. § 103(a)

Claims 6-7, 9-10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over "Ziegler" (Corporate Research & Development) in view of U.S. Patent 6,069,670 ("Borer") and U.S. Patent 5,347,599 ("Yamashita"). Applicants respectfully submit that the rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, not only must the cited references teach or suggest each element of the claim, but the prior art must also suggest the desirability of combining the elements in the manner contemplated by the claim, and the mere fact that references can be combined or modified does not render the resultant combination obvious.

M.P.E.P. § 2143.01 (citing In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)).

Claim 6 recites a method for generating an image signal when estimating a motion of image sequences, the method including the step of "starting out from the first motion vector, in a second search step, **determining a second motion vector with a sub-pel accuracy by an aliasing-reducing interpolation filtering**, using a digital filter, a resolution being selected to be higher than that corresponding to a resolution of a pixel raster in the first search step, more than four neighboring pixels being utilized for an interpolation of each pixel, to interpolate pixels between a scanning raster for the first search step."

In support of the rejection, the Examiner contends that while "Ziegler does not specifically disclose utilizing aliasing reducing interpolation filtering, . . . Borer teaches motion vector detecting method comprising aliasing reducing interpolation." Therefore, the Examiner concludes that "it would have been obvious . . . when estimating a motion of image sequences as taught by Ziegler to incorporate the concepts as . . . taught by Borer . . . to reduce the unwanted aliasing by utilizing the Borer's interpolation filter." However, as explained in further detail below, Applicants submit that the overall teachings of Ziegler and Borer do not support the Examiner's conclusions.

With respect to the Examiner's citation of Borer as teaching "motion vector detecting comprising aliasing reducing interpolation filtering," Applicants note that Borer describes only the special case of "motion compensated de-interlacing," which is required for "television standard conversion" or "video-to-film conversion." The "motion compensated de-interlacing" described in Borer, however, is a special kind of interpolation filtering for the treatment of line skip, and any "aliasing reduction" that may be carried out has a totally different meaning in

comparison to the Applicants' invention. In contrast to the teachings of Borer, the aliasing-reducing interpolation filtering of Applicants' invention involves achieving a greater resolution of the motion vector and thereby obtaining a prediction gain and a higher coding efficiency. In addition, in accordance with Applicants' invention, it is possible to adjust the FIR filter coefficients to the signals to be coded, and transmit them separately for each video object.

In addition to the above, the overall teachings of Ziegler and Borer simply do not provide any motivation for making the specific modification asserted by the Examiner in an attempt to approximate the Applicants' claimed invention. Applicants note that Ziegler merely teaches the process of estimating motion vectors with increased resolution, but Ziegler does not teach how to derive the values needed for interpolation. Furthermore, given that the "motion compensated de-interlacing" described in Borer is a special kind of interpolation filtering for the treatment of line skip, the overall teachings of Ziegler and Borer simply do not provide any motivation for one of ordinary skill in the art to selectively pick out the specific features of Ziegler and Borer and combine them in the manner asserted by the Examiner.

Regarding the Examiner's asserted incorporation of the teachings of Yamashita with the teachings of Ziegler, Applicants note that while Ziegler teaches the process of estimating motion vectors with increased resolution (without teaching how to derive the values needed for interpolation), the adaptive interpolation method with more than four neighboring pixels as taught by Yamashita is clearly not used for **video sequences,** let alone **motion estimation for video sequences**. In view of the above-noted disclosures of Ziegler and Yamashita, it is simply unreasonable to assert that the overall teachings of Ziegler and Yamashita would suggest combining the specific elements of Ziegler and Yamashita in the manner asserted by the Examiner in an attempt to approximate the claimed invention.

It is respectfully submitted that the Examiner's asserted combination of Ziegler, Borer and Yamashita is plainly based on nothing more than improper hindsight reasoning that is unsupported by the actual disclosures of the applied references. In this regard, the Examiner's arguments for making the asserted combination amounts to nothing more than that the teachings of Ziegler, Borer and Yamashita may be selectively combined, and therefore one of ordinary skill in the art would selectively combine the teachings. However, such argument is a classic example of an "obvious-to-try" rationale, which is insufficient to support a prima facie obviousness: the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990).

With respect to the subjective "obvious to try" standard, the cases of In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), clearly indicate that the Examiner's generalized assertions that it would have been obvious to combine or modify the references relied upon do not properly support an obviousness rejection. In particular, the Court in the case of In re Fine stated that:

> Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

In re Fine, 5 U.S.P.Q.2d at 1600 (citations omitted; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish prima facie obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . . Conspicuously missing from this record is any evidence, other than the **PTO's speculation** (if it be

called evidence) **that one of ordinary skill . . . would have been motivated to make the modifications** . . . necessary to arrive at the claimed [invention].

In re Jones, 21 U.S.P.Q.2d at 1943 & 1944 (citations omitted).

Applicants note that the Examiner has offered no evidence whatsoever of actual suggestion in the applied prior art to make the asserted modification, but only conclusory hindsight, reconstruction and speculation, which the Court of Appeals for the Federal Circuit has indicated does not constitute evidence that will support a proper obviousness finding.

For the foregoing reasons it is respectfully submitted that claim 6 and its dependent claims 7, 9-10 and 12 are not rendered obvious by the combination of Ziegler, Borer and Yamashita, and that the obviousness rejection of claims 6-7, 9-10 and 12 should be withdrawn.

III. Rejection of Claim 8 under 35 U.S.C. § 103(a)

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziegler, Borer and Yamashita as applied to claim 6 above, and further in view of U.S. Patent 5,684,538 ("Nakaya"). Applicants respectfully submit that the rejection should be withdrawn for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be

a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, not only must the cited references teach or suggest each element of the claim, but the prior art must also suggest the desirability of combining the elements in the manner contemplated by the claim. M.P.E.P. § 2143.01 (citing In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990).

Applicants note that claim 8 recites "wherein **the more than four neighboring pixels** are **more neighboring pixels than are utilized for a bilinear interpolation**." In support of the rejection of claim 8, the Examiner cites Nakaya as teaching the use of "bilinear interpolation as an interpolation process using four pixels around the interpolation point," and the Examiner contends that it would have been obvious to incorporate into the teachings of Ziegler "the concept as taught by Nakaya so that **more neighboring pixels are utilized for a bilinear interpolation**." However, the Examiner' contention completely ignores the claim language, which requires more than four neighboring pixels, and "the more than four neighboring pixels are **more neighboring pixels than are utilized for a bilinear interpolation**." In any case, claim 8 depends on claim 6, and Nakaya does not remedy the deficiencies of the combination of Ziegler, Borer and Yamashita as applied against parent claim 6.

For at least the Even the combination of Ziegler, Borer, Yamashita and Nakaya does not render claim 8 obvious.

IV. Rejection of Claim 11 Under 35 U.S.C. § 103(a)

Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziegler, Borer and Yamashita as applied to claim 6 above, and further in view of U.S. Patent 5,991,447 ("Eifrig"). Applicants respectfully submit that the rejection should be withdrawn for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, not only must the cited references teach or suggest each element of the claim, but the prior art must also suggest the desirability of combining the elements in the manner contemplated by the claim. M.P.E.P. § 2143.01 (citing In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990).

In support of the rejection, the Examiner cites Eifrig as teaching "predicting video objects separately (Abs.), and inserting coefficients into a transmission bit stream (140) at a beginning." Without passing judgment on the merits of the Examiner's assertions, Applicants note that claim 11 depends on claim 6, and that the teachings of Eifrig does not remedy the deficiencies of the combination of Ziegler, Borer and Yamashita as applied against parent claim 6. Accordingly, Applicants submit that claim 11 is allowable over the combination of Ziegler, Borer, Yamashita and Eifrig.

For the foregoing reasons, the obviousness rejection of claim 11 should be withdrawn.

V. Conclusion

In light of the foregoing, it is respectfully submitted that all pending claims 6-12 are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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